

Micrometrical Measures of Double Stars (13th Series) and New Double Stars. By Rev. T. E. Espin.

In the following list the measures have been made with the 24-in. Calver reflector :—

Name.	R.A. 1900.	Decl.	P.	D.	Mags.	Nts.	Date.
	h m	° ' "	° ' "	° ' "			1918.
Espin 44	0 51.1	+56 57	249.7	8.58	7.5 11.8	2	'978
A.G.	1 49.1	60 6	262.2	8.91	9.1 9.3	2	'976
J. 6	2 23.1	58 58	134.0	2.96	9.2 10.5	1	'882
Σ 490	4 1.9	59 53	55.6	4.79	9.0 9.1	3	'991
Espin 62	5 17.3	41 2	61.6	3.29	9.5 12.0	1	'156
Espin 65	6 19.0	41 39	85.4	2.44	9.2 9.6	2	'204
Σ 1139 rej.	7 42.7	37 22	10.8	16.06	9.1 9.5	2	'204
Espin 179	50.3	37 59	87.8	3.91	9.5 9.6	2	'216
Σ 1204	8 9.3	38 47	101.1	11.30	8.6 9.1	2	'204
Σ 1239	26.0	37 50	287.6	12.07	8.8 9.2	2	'216
Σ 1274	42.6	38 43	40.2	9.03	7.6 8.9	3	'292
Espin 295	42.8	35 21	307.5	3.37	9.6 11.7	3	'270
Espin 294	42.8	36 31	161.8	1.75	9.5 9.7	2	'312
Σ 1282	44.5	35 26	274.6	3.62	7.0 7.1	3	'236
Σ 1321	9 7.7	53 7	69.1	19.09	7.6 7.8	2	'335
Σ 1338	14.7	38 37	179.5	1.50	7.0 7.2	5	'178
A.G. 164	17.6	38 51	20.2	4.55	9.2 9.3	2	'193
h 2509	46.8	37 41	66.9	14.33	9.6 10.4	2	'193
h 3318	56.7	36 44	341.8	24.05	9.5 10.0	2	'335
Espin 180	10 2.7	36 4	355.3	6.94	9.1 10.8	2	'335
h 2525	12.6	37 0	74.6	16.01	10.2 10.4	2	'335
Hu. 882	36.8	37 36	277.6	2.76	9.1 13.0	2	'193
Espin 181	11 7.7	36 16	139.8	6.00	9.2 10.4	3	'323
h 496	16.2	37 19	329.1	28.85	9.1 9.6	2	'335
h 502	28.3	37 35	270.0	1.2	9.5 12.0	2	'376 AB
			218.4	12.27	C=12.5	2	'376 AC
Espin 639	17 44.3	56 16	172.7	11.70	8.9 9.3	2	'750
Roe 17	50.0	59 40	53.5	9.17	8.5 9.2	3	'823
Espin 79	18 0.8	55 52	77.0	6.18	9.5 12.0	3	'759 AB
			94.0	25.21	C= 9.5	3	'759 AC
Espin 643	10.9	55 54	50.6	4.36	9.2 11.3	2	'750
Σ 2323	22.5	58 44	357.7	3.43	5.0 8.0	4	'637 AB
			254.5	36.05	C=14.0	4	'637 AC
			86.4	41.32	D=14.0	4	'637 AD
Espin 981	19 11.9	55 13	88.3	2.81	9.2 10.7	3	'865

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Name.	R.A. 1900.		Decl.	P.	D.	Mags.		Nts.	Date.
	h	m	° ' "	°	"				1918.
Espin 192	19	13.2	+59 35	113.8	5.91	8.8	10.2	3	.930
Espin 193		13.6	59 36	120.0	7.00	8.5	10.5	3	.930
Espin 132	20	7.6	56 39	80.4	5.58	8.8	9.0	2	.742 AB
				60.3	36.97	C=	8.7	2	.742 AC
A.G.		8.3	58 20	207.1	6.27	9.2	9.3	3	.903
<i>h</i> 2978		26.8	59 19	276.3	13.93	9.2	9.8	3	.947
Espin 92		39.3	48 54	121.7	9.13	8.0	8.2	3	.846
Espin 135		51.4	56 48	195.6	6.59	7.7	10.6	4	.966
Espin 136		57.2	56 51	161.1	4.29	9.2	9.4	3	.958
Σ 2780	21	9.2	59 35	225.4	1.10	6.1	7.0	4	.768
Σ 2790		16.5	58 12	48.5	5.12	6.5	9.0	2	.923
Holmes		17.3	58 17	65.0	13.64	9.2	9.4	2	.984
O Σ 440		24.7	59 19	181.8	11.22	6.5	9.6	2	.976
<i>h</i> 1748	22	13.1	58 2	276.2	7.65	9.5	9.6	2	.960
<i>h</i> 1782		28.8	59 37	315.9	4.46	11.0	11.2	3	.981
<i>h</i> 1783		28.9	59 43	272.4	6.37	9.8	9.9	2	.979
Espin 38	23	54.0	56 35	236.3	18.91	9.0	9.5	2	.999

*Notes.*A.G., 1^h 49^m.1. Not in β 's G.C.

J. 6. Milburn P. 136°.1, D. 2''95, mags. 9.0, 11.2. 1918.882.

Espin 62. Also a 9.7 N.

 Σ 1139 rej., Espin 179, *h* 2509, *h* 3318, *h* 2525. No other measures.*h* 502. It is very doubtful whether the new companion is not a "ghost." Σ 2323. The two faint stars were detected by Mr. Milburn with the 17 $\frac{1}{2}$ -in.

Espin 192. Motion probable.

A.G., 20^h 8^m.3, Hels. Gotha. Cat. of the Astron. Gesell., Introduction, p. 7,Dupl. 8'', 9.5, 9.5. Not in β 's G.C.Espin 38. In *A.N.* 1717 and β 's G.C. for 337° read 237°.*New Double Stars.*

No.	B.D.	R.A. 1900.		Decl.	P.	D.	Mags.		Nts.	Date.
		h	m	° ' "	°	"				1918.
1706	+59° 2831	0	2.3	+59 35	79.1	2.00	9.5	10.3	2	.874
1707	+60° 44		18.3	+60 17	103.5	7.99	9.3	12.5	2	.847
1708			48.3	+60 8	303.1	3.70	9.6	12.0	2	.861
1709	+58° 137		50.5	+58 55	282.2	5.25	9.5	11.0	2	.940
1710	+58° 146		53.1	+59 11	332.7	6.04	8.5	9.0	2	.948
1711	+58° 145		53.2	+58 57	54.2	2.89	9.3	10.8	3	.943
1712	+58° 231	1	18.0	+58 26	297.0	5.66	8.9	13.5	2	.845
1713	+57° 282		19.7	+58 1	147.1	1.37	9.4	9.5	3	.854
1714	+59° 528	2	33.1	+60 0	81.8	3.37	9.5	13.2	2	.993
1715	+59° 753	3	59.1	+59 52	162.2	5.49	8.5	10.2	2	.986

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No.	B.D.	R.A. 1900.	Decl.	P.	D.	Mags.	Nts.	Date.
		h m	° '	°	"			1918:
1716	+40° 1097	4 49'9	+40 39	137'3	5'64	9'2 11'2	3	'122
1717	+40° 1132	54'0	+40 20	233'6	1'85	9'3 10'0	2	'180
1718	+40° 1144	55'5	+40 5	272'5	2'09	9'5 9'7	2	'204
1719	+40° 1159	57'4	+40 23	22'7	4'64	9'5 12'0	2	'189
1720	+41° 1071	5 1'4	+41 57	117'1	3'47	9'3 9'7	2	'130
1721	+40° 1189	3'3	+40 32	162'1	5'66	8'4 11'2	2	'204
1722	+41° 1105	5'0	+41 46	302'1	5'10	8'5 12'0	3	'168
1723	+41° 1130	9'0	+41 47	210'7	2'37	9'2 9'3	3	'168
1724	+41° 1194	21'0	+41 5	228'6	2'59	9'5 11'7	3	'168
1725		26'8	+40 40	214'4	2'56	10'5 10'8	1	'222
1726	+40° 1412	40'4	+40 15	75'9	2'89	9'3 9'4	2	'250
1727	+41° 1280	42'9	+41 4	51'4	2'49	9'4 9'5	2	'163
1728	+41° 1298	47'5	+41 2	264'0	5'43	9'1 9'2	2	'189
1729	+40° 1484	56'1	+41 0	313'0	6'83	8'9 10'7	2	'204
1730	+41° 1390	6 6'1	+41 25	140±	4±	9'5 14	1	'161
1731	+39° 1989	7 35'6	+39 50	98'5	1'28	9'2 9'3	4	'158
1732	+38° 1907	8 17'7	+37 56	67'0	8'01	8'5 9'2	2	'247
1733		54'3	+38 46	323'2	2'83	9'5 10'7	3	'207
1734		9 11'4	+37 6	67'3	2'62	10'2 10'7	2	'236
1735		14'4	+37 34	181'0	4'11	10'1 10'6	2	'247
1736	+38° 2071	43'4	+38 14	106'3	1'16	9'2 10'5	2	'220
1737	+36° 2121	10 41'1	+36 10	279'4	1'75	9'5 9'6	2	'282
1738	+38° 2276	11 40'8	+38 3	162'4	1'97	9'3 9'6	3	'323
1739	+37° 2258	12 9'0	+37 28	291'7	4'51	9'4 12'0	3	'323
	+56° 1904	16 33'6	+56 45	188'7	9'61	9'2 9'7	2	'666
1740	+56° 1969	17 16'7	+56 14	314'7	1'61	9'5 12'0	4	'737
	+56° 1977	20'2	+56 43	73'1	11'47	10'0 10'3	2	'742 BC
				92'1	29'94	A=7'5	2	'742 AB
	+57° 1765	25'3	+57 22	2'3	10'16	8'9 11'0	2	'653
1741	+57° 1768	26'8	+57 7	181'1	2'56	9'3 9'5	2	'675
1742	+57° 1772	28'5	+57 47	33'4	1'76	9'5 10'2	3	'649
	+57° 1775	30'1	+56 59	210'5	13'85	8'0 9'2	4	'719
1743		44'3	+59 16	73'8	2'04	10'5 10'7	2	'735 BC
				231'3	30'17	A=9'6	2	'735 AB
1744	+57° 1823	54'7	+57 32	264'9	6'89	9'2 9'4	2	'630
1745	+56° 2058	18 1'0	+56 22	226'4	4'91	9'5 13'0	3	'692
1746		51'4	+58 7	114'5	1'62	9'6 9'8	2	'691
1747	+57° 1923	55'1	+57 15	163'5	1'62	9'2 9'4	3	'714

New Double Stars—continued.

No.	B.D.	R.A. 1900.	Decl.	P.	D.	Mags.	Nts.	Date.
		h m	° ' "	°	"			1918.
1748	+55° 2134	18 57.8	+55 35	57.1	6.35	8.7 10.0	2	.861
1749	+56° 2186	19 1.6	+56 5	179.5	6.14	9.4 9.8	2	.830
1750	+58° 1883	11.6	+58 24	313.6	4.88	9.5 13.5	3	.710
1751	+56° 2215	12.6	+56 14	351.1	6.74	8.8 14.0	3	.822
1752		13.5	+59 14	321.6	3.79	9.6 12.2	3	.805
1753	+56° 2219	14.0	+56 15	57.4	3.09	8.2 12.5	3	.822
1754	+57° 1994	19.7	+57 19	85.7	5.68	9.3 13.5	3	.754
	+55° 2265	46.3	+55 45	257.1	9.04	8.5 9.6	2	.855
1755	+59° 2151	54.9	+59 43	173.5	5.39	8.5 9.2	2	.871
1756	+56° 2339 ?	58.2	+56 12	180.9	2.29	9.5 9.6	2	.845
1757	+58° 2039	20 1.2	+59 4	213.3	2.62	9.6 10.8	4	.899
1758	+58° 2062	7.9	+58 38	174.2	5.23	9.5 10.7	2	.890
1759		27.2	+59 12	220.1	2.43	10.0 10.2	3	.902 AB
				303.0	5.45	C=10.3	2	.880 AC
	+58° 2209	58.4	+59 7	52.2	10.09	9.2 9.2	2	.695
1760	+56° 2537	21 7.8	+56 46	39.9	2.56	9.0 12.5	3	.868
	+58° 2259	20.7	+58 56	265.1	12.81	9.3 10.5	3	.967
1761	+58° 2321	41.8	+59 9	340.4	3.56	9.4 9.8	3	.924
1762	+57° 2513	22 18.5	+58 13	341.4	6.35	9.2 13.7	2	.997
1763		33.6	+59 44	213.2	2.42	10.7 11.1	3	.981
1764		36.6	+59 49	255.5	3.87	9.5 12.7	3	.966
1765	+59° 2709	23 18.0	+59 19	232.2	2.02	9.2 10.2	2	.907
1766	+59° 2733	25.0	+59 35	319.2	3.37	9.5 9.6	2	.873
1767	+59° 2767	41.2	+59 40	36.0	5.55	9.5 11.6	2	.861
	+58° 2650	43.2	+59 14	84.2	8.81	9.0 10.2	2	.873
1768	+59° 2792	52.2	+60 5	0.2	6.89	9.2 10.8	2	.855

Notes.

1712. An 8.0 mag. at 185° 0, D. 49".11, orange, B.D. +58° 230. B.D. +58° 231 is much underrated in Argelander.

1716. Also a 10.5 mag. at P. 341°.4.

1720. A 14 mag. at P. 140°.4, D. 15" ±.

1734. s.p. Σ 1334.

1745. This star is given in the B.D. as 9.1 mag.; it is certainly less.

1749. Also an 11.5 mag. at 257°.3, D. 17".5 from B.

1756. The R.A. agrees with the B.D., but this star is some 2' north of Argelander's place. There is no star above 12.5 mag. in his place, and no star on the Harvard Map of the sky.

1758. A 9.7 mag. at 357°.8.

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The following have been found by Mr. Milburn with the 17 $\frac{1}{4}$ -inch, and have been measured with the 24-inch:—

No.	B.D.	R.A. 1900.	Decl.	P.	D.	Mags.	Nts.	Date.
		^h °	^m '					1918.
36	+58°	1	0 3'0	+58 40	359°1	6'58	8.7 11.2	2 '960
37	+56°	5	3'3	+56 28	199°1	2'96	9.4 11.7	2 '994
38	+58°	42	19'1	+59 13	79°6	5'14	10.0 12.0	3 '854
39	+57°	90	23'6	+57 19	198°6	3'49	9.4 9.6	3 '985
40	+56°	93	31'1	+57 3	334°9	2'81	9.5 9.6	2 '999
41	+59°	115	41'2	+59 48	151°1	7'22	9.5 9.6	3 '861
42	+58°	128	47'0	+59 7	223°4	2'45	9.2 9.5	3 '847
43	+59°	171	57'0	+60 0	298°0	7'98	9.4 9.4	2 '861
44	+58°	275	1 35'2	+58 54	139°3	3'60	9.5 9.7	2 '907
45	+57°	393	41'4	+57 52	122°7	2'41	9.6 9.8	3 '864
46	+57°	397	41'8	+57 23	335°9	2'56	9.5 9.6	2 '861
47	+58°	311	44'0	+59 9	173°7	2'41	9.4 11.7	3 '971 AB
					306°7	5'96	10.0 13.6	3 '985 CD
					130°5	36°89		'979 AC
48	+58°	333	49'6	+58 31	69°7	1'51	9.5 9.7	4 '923
49	+59°	418	2 3'0	+59 51	1°1	5'40	9.5 11.5	2 '855
50	+55°	662	29'2	+55 51	29°3	5'96	9.5 11.3	2 '968
51	+57°	609	33'4	+57 16	178°7	5'20	9.6 12.0	3 '956
52			35'5	+57 48	4°2	4'50	10.0 10.3	2 '900
53	+58°	548	54'1	+58 27	103°4	6'18	9.2 10.1	3 '921
54	+56°	821	3 26'1	+56 55	16°9	4'31	9.3 9.6	4 '987
55			27'3	+40 28	34°3	4 20	9.4 10.7	2 '830 1917
56	+59°	696	33'5	+59 32	311°1	6'08	9.5 13.2	2 '999
57	+59°	757	4 0'0	+59 36	225°4	2'52	9.5 11.2	2 '968
58			2'5	+55 29	351°0	3'78	9.5 9.7	2 '999
59	+57°	837	36'6	+57 6	330°2	7'10	9.2 9.4	2 '968
60			56'0	+40 52	148°8	3'97	11.7 11.9	3 '177
61	+56°	1026	5 17'6	+57 2	57°2	2'91	9.6 10.5	1 '975
	+41°	1354	59'9	+41 46	238°5	9'58	8.3 9.6	2 '149
62			6 21'4	+40 22	179°7	6'02	10.1 10.6	3 '243
63			32'0	+42 25	260°0	5'33	9.2 9.8	3 '230
	+41°	1559	50'8	+41 37	178°8	10'98	9.4 10.0	3 '177
	+39°	1886	7 5'4	+39 46	78°2	10'78	8.6 11.2	2 '216
64			40'3	+38 48	5°6	4'06	9.5 10.4	2 '187
65			9 19'2	+38 42	316°8	4'20	11.1 11.2	3 '190
66	+36°	2116	10 40'0	+36 29	181°1	4'45	9.5 10.2	4 '242
67	+57°	1371	12 18'3	+56 56	145°9	7'43	9.5 10.6	2 '416
68	+37°	2286	25'8	+37 13	170°2	4'73	9.5 9.6	3 '323
69	+58°	1435	13 13'4	+58 43	43°0	3'89	9.4 9.9	3 '421
70	+58°	1447	23'2	+58 38	237°6	5'30	9.3 12.0	3 '421
71	+58°	1580	15 34'8	+58 44	283°9	3'48	9.3 9.9	3 '421

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No.	B.D.	R.A. 1900.	Decl.	P.	D.	Mags.	Nts.	Date.
		h m	° ' "	°	"			1918.
72	+60° 1625	15 35.2	+60. 41	2.6	1.77	9.5 9.6	6	.576
	+59° 1699	16 2.4	+59 39	214.0	10.93	8.5 9.9	2	.416
73	+58° 1623	8.8	+58 53	183.9	1.88	9.4 9.5	4	.517
74	+57° 1688	32.6	+57 48	271.0	5.45	9.4 12.0	2	.517
	+57° 1806	17 46.3	+57 9	181.8	11.28	8.6 10.5	2	.687 AB
				48.6	18.24	C=13.5	2	.687 AC
75	+57° 1818	51.4	+57 14	326.1	2.73	9.5 10.5	4	.612
	+59° 1920	18 44.5	+59 17	278.9	8.83	10.6 11.5	2	.664 BC
				202.7	35.76	A=9.3	3	.671 AB
76	+58° 1836	47.8	+58 4	140.9	5.22	9.6 10.5	2	.653
77	+59° 1954	19 7.4	+59 44	180.5	6.39	9.4 9.5	2	.653
78	+58° 1875	8.8	+58 44	54.2	5.16	9.5 9.8	2	.653
79		27.4	+58 59	317.1	4.00	10.0 10.5	2	.675
80	+56° 2258	30.9	+56 47	180.3	6.45	9.5 10.2	2	.758
81	+59° 2077	34.7	+59 42	176.2	6.45	9.5 10.3	2	.653
82		59.3	+58 52	11.0	5.12	11.2 11.7	2	.691
83		20 6.6	+57 51	90.3	6.03	10.5 11.0	3	.689
84	+56° 2414	22.8	+57 7	152.0	7.90	9.0 13.5	3	.834
85		37.5	+58 23	133.9	6.25	9.9 11.8	2	.691
86	+56° 2493	46.9	+57 5	143.7	6.77	9.5 9.7	2	.682
	+58° 2220	21 1.9	+58 40	29.8	9.76	8.7 11.8	3	.695
	+59° 2354	16.2	+59 13	105.3	10.06	8.4 9.8	2	.795
87		17.2	+57 13	330.4	2.61	10.0 10.1	3	.852
88	+59° 2375	23.1	+59 31	114.3	7.22	9.2 10.5	2	.722
89	+59° 2394	28.1	+59 49	58.0	5.83	9.4 9.5	2	.760
90	+57° 2360	36.7	+57 48	41.3	8.22	8.5 10.2	2	.694
91	+57° 2378	40.3	+58 7	72.0	4.45	9.4 9.5	3	.832
92		54.3	+59 8	53.9	5.39	10.7 11.0	2	.760
93	+57° 2439	57.4	+58 3	305.3	4.24	9.5 9.8	2	.844
94	+56° 2695	22 1.2	+56 20	305.9	6.00	9.1 10.8	2	.873
95	+56° 2749	13.2	+56 41	251.7	2.33	9.4 11.7	4	.768
96	+55° 2761	27.1	+55 59	51.9	2.46	9.4 10.3	3	.845 AB
				191.6	14.51	C=12.0	3	.845 AC
97	+60° 2417	32.4	+60 22	64.6	7.06	9.5 11.0	2	.848
98	+58° 2498	48.8	+58 55	267.5	3.56	9.6 10.2	3	.924
99	+57° 2655	54.2	+57 59	279.3	3.02	9.2 9.4	2	.845
100	+56° 2918	54.7	+57 5	317.8	2.95	9.5 9.6	2	.861
101	+59° 2638	23 0.3	+59 50	293.7	7.56	9.5 10.7	3	.869
102		1.3	+57 27	162.4	6.00	9.2 11.5	3	.943
103	+55° 2995	34.1	+56 6	336.9	4.91	9.5 9.6	1	.843
104	+56° 3090	42.5	+56 48	353.6	5.96	9.3 11.5	2	.845
105	+55° 3065	54.2	+55 58	227.1	3.19	9.4 11.7	2	.994
106		57.5	+59 9	49.6	2.93	10.5 11.7	3	.973

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40. Milburn, another star, 9.5 mag. at P. 328°, D. 81".
 44. At P. 334°.8 from B.D. +57°.616.
 60. At P. 207° from B.D. +40°.1149.
 61. Milburn, P. 58°.9, D. 2".83. 1919.003.
 68. „ P. 169°.9, D. 4".83, mags. 9.5, 9.6. 1918.356.
 70. „ P. 237°.1, D. 5".41. 1918.363.
 72. This star has a considerable proper motion in declination, as is shown by comparisons with the neighbouring star B.D. +60°.1619, and Mr. Franks has kindly made measures of the present difference. It is A.Ö. 15538, and we have the following:—

Difference in declination	1842.38	81".6	A.Ö.
	1873.36	96.0	A.G.
	1918.54	106.17	Franks.

The later results yield a P.M. +0".23.

79. Milburn, P. 316°.8, D. 4".12. 1918.665.
 83. At P. 197°.8 from B.D. +57°.2147.
 90. Also a 9.8 mag. at P. 138°.4.
 103. Milburn, P. 353°.1, D. 5".85. 1918.760.
 104. Comes, 13.5 mag., P. 178°.8, D. 9".79. 1918.846. I nt.

B.D. Stars found to be Faint or Missing.

	h	m	s		mag.
(1) +59° 170	0	54	7.1	(1855) +59° 5'.1	9.0
(2) +40° 1269	5	12	55.1	+40 39.8	9.5
(3) +41° 1198		18	58.5	+41 26.4	9.5
(4) +41° 1297		44	15.5	+41 8.9	9.5
(5) +40° 1821	7	6	30.6	+40 29.7	9.5
(6) +39° 1963		22	54.8	+39 59.7	9.5
(7) +56° 2292	19	40	42.0	+56 43.6	9.2
(8) +57° 2236	20	39	15.2	+57 50.6	9.5
(9) +57° 2437	21	53	54.4	+57 42.5	9.5
(10) +58° 2557	23	5	3.0	+58 29.6	9.5

Notes.

- (1) Not seen in moonlight, 1918 Nov. 19. Mag. 9.8, *nf* of 2, Dec. 13. 11 mag. in Harvard Map of the sky. A.G. 9.6.
 (2) 11.5 mag., 1918 March 22. Faint in H.M. of the sky; and Barnard's photo.
 (3) No star here, 1918 Feb. 8; there is a 9.5 mag. 5' ± N.
 (4) Not seen, haze, 1918 March 9; faint wide pair, March 13.
 (5) No star seen, 1918 Feb. 8; a star 9.5 mag. 1^m ± preceding.
 (6) No star seen by Milburn, 17½ in.; no star, 24 in., 1918 March 13. A star 5' ± S.
 (7) Not seen by Milburn, 1918 Sept. 26. Not in H.M. of the sky.
 (8) Faint, Milburn. 1918 Aug. 31, 12.0 mag. Not certainly seen in H.M. of the sky.
 (9) 11 mag., 1918 Dec. 29. Faint on Barnard's photo. Not seen in H.M. of the sky.
 (10) 11 mag., 1918 Dec. 24. On Barnard's photo No. 85, bright; No. 86, faint. Seen on H.M. of the sky. Variable?

Observation of a Bright Projection on the Limb of Jupiter.

By F. Sargent.

A phenomenon of great rarity, if not quite unique, was observed by me at Bristol on the evenings of 1919 January 16 and 17.

On directing the telescope to the planet Jupiter at 8^h 50^m, it was at once seen that the contour of the "following" limb was broken by a projection of great brilliancy, as though being seen in profile. Its position was on the Equatorial Zone, and about midway between the North Equatorial Belt and the Equator. The projection was seen to subside slowly, leaving the limb unbroken at about 9^h 20^m, when the object was seen as a bright spot on the tinted Equatorial Zone. The spot was clearly visible until clouds put an end to observation for the remainder of the evening.

On the following evening Jupiter came under observation at 6^h 5^m, when the bright spot was found about midway between the "following" limb and the central meridian. It was situated in a bay on the south edge of the North Equatorial Belt. As it approached the central meridian its brilliancy lessened, the spot ultimately becoming invisible, its position being known only by means of the bay in which it was situated. This bay was timed to transit the central meridian at 6^h 46^m.5 (Long. 266° 6, System I.).

At 7^h 10^m the spot again became visible, and was followed right up to the limb, meanwhile growing in brilliancy. At 8^h 53^m projection from the limb was suspected. At 9^h the object was "flickering" in and out of the limb. At 9^h 10^m it was steadily observed to break the usually even contour of the limb, and then, slowly subsiding, was judged to have disappeared at 9^h 20^m. It was not possible to re-observe the object on the 18th, on account of unfavourable weather.

By way of explanation, we have a choice of alternatives: a real material projection from the surface of the planet, of dimensions great enough for it to be visible; or, irradiation due to excessive brilliancy of a spot at or near the normal level of its surroundings, similar to the familiar phenomena presented by the brilliant polar caps on Mars.

I am of opinion that the former suggestion best accords with the facts of observation, as on the second suggestion it is difficult to explain why an object of such brilliancy should become invisible when approaching the central meridian. It is a fact of common observation that features excessively bright when on the central meridian are observationally lost when near the limbs, and the fact that this order is reversed with the object now seen, seems to indicate that intrinsic brilliancy is not the supreme factor.

Bristol:

1919 Jan. 20.